

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A non-contact position sensor comprising:

a plurality of magnets forming a magnetic circuit so that a continuous magnetic flux flows from one of said magnets, to and through another of said magnets, and back to and through said one of said magnets;

at least one magnetic sensor element within said magnetic circuit; and

an object to be detected, said object positioned in said magnetic circuit in a space between said one and said another of said magnets, said magnetic sensor element remains stationary while said object moves,

said magnetic circuit comprising a U-shaped first magnetic body, a U-shaped second magnetic body, and ~~two magnets included in~~ said one and said another of said plurality of magnets,

said ~~two~~one and said another of said magnets are disposed between said two U-shaped magnetic bodies arranged vertically, and

said magnetic sensor element is held by said two U-shaped magnetic bodies.

2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)

Application No.: 09/913,362
Amendment Dated: August 12, 2005
Reply to Office Action of: April 27, 2005

MAT-8172US

6. (Currently Amended) The non-contact position sensor according to ~~any one of claim 1 to claim 5~~, wherein said object to be detected has a cross section of any one of a ~~sectorial~~sector shape, semicircular shape and I shape.

7. (Cancelled)

8. (Currently Amended) The non-contact position sensor according to claim ~~[[5]]1~~, wherein

said first magnetic body has a portion having a thickness smaller than the ~~ether~~another portion of said first magnetic body, and

said magnetic sensor element is disposed to said portion of smaller thickness.

9. (Currently Amended) The non-contact position sensor according to claim ~~[[5]]1~~, wherein the portion of said first magnetic body where said magnetic sensor element is disposed has a stepped level of different plane from the ~~ether~~another portion.

10. (Cancelled)

11. (Cancelled)

12. (Currently Amended) The non-contact position sensor according to claim 1, wherein the portion of each said U-shaped magnetic bodies where said magnetic sensor element is disposed has a stepped level of different plane from the ~~ether~~another portion of each of said U-shaped magnetic bodies.

13. (Previously Presented) The non-contact position sensor according to claim 12, wherein the portions of said U-shaped first and second magnetic bodies where said magnetic sensor element is disposed are in contact to each other via said magnetic sensor element.

14. (Currently Amended) A non-contact position sensor comprising:

a plurality of magnets forming a magnetic circuit which includes two U-shaped magnetic bodies so that a continuous magnetic flux flows from one of said magnets,

Application No.: 09/913,362
Amendment Dated: August 12, 2005
Reply to Office Action of: April 27, 2005

MAT-8172US

to and through another of said magnets, and back to and through said one of said magnets;

at least one magnetic sensor element within said magnetic circuit; and

an object to be detected, said object positioned in said magnetic circuit in a space between said one and said another of said magnets, said magnetic sensor element remains stationary while said object moves;

said magnetic circuit comprising a U-shaped first magnetic body, a U-shaped second magnetic body and the magnet included in said plurality of U-shaped magnets and disposed between said magnetic bodies

wherein at least one of said two U-shaped magnetic bodies has a shape that at least partially conforms with an external shape of said object to be detected.

15. (Currently Amended) A non-contact position sensor comprising:

a plurality of magnets forming a magnetic circuit which includes two U-shaped magnetic bodies so that a continuous magnetic flux flows from one of said magnets, to and through another of said magnets, and back to and through said one of said magnets;

at least one magnetic sensor element within said magnetic circuit; and

an object to be detected, said object positioned in said magnetic circuit in a space between said one and said another of said magnets, said magnetic sensor element remains stationary while said object moves, wherein

said magnetic circuit comprising a U-shaped first magnetic body, a U-shaped second magnetic body and the magnet included in said plurality of the U-shaped magnets and disposed between said magnetic bodies

each of said two U-shaped magnetic bodies has stepped planes, and

said twone and said another of said magnets confront each other at different planes.

16. (Currently Amended) A non-contact position sensor comprising:

a plurality of magnets forming a magnetic circuit which includes two U-shaped magnetic bodies so that a continuous magnetic flux flows from one of said magnets, to and through another of said magnets, and back to and through said one of said magnets;

at least one magnetic sensor element within said magnetic circuit; and

an object to be detected, said object positioned in said magnetic circuit in a space between said one and said another of said magnets, said magnetic sensor element remains stationary while said object moves, wherein

said magnetic circuit comprising a U-shaped first magnetic body, a U-shaped second magnetic body and the magnet included in said plurality of the U-shaped magnets and disposed between said magnetic bodies

each of said two U-shaped magnetic bodies further has a magnet supporting section, and

said ~~two~~one and said another of said magnets confront each other at different planes.

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Currently Amended) A non-contact position sensor comprising:

a plurality of magnets forming a magnetic circuit which includes two U-shaped magnetic bodies so that a continuous magnetic flux flows from one of said magnets,

Application No.: 09/913,362
Amendment Dated: August 12, 2005
Reply to Office Action of: April 27, 2005

MAT-8172US

to and through another of said magnets, and back to and through said one of said magnets;

at least one magnetic sensor element within said magnetic circuit; and

an object to be detected, said object positioned in said magnetic circuit in a space between said ~~one and said another of said magnets~~two U-shaped magnetic bodies, said magnetic sensor element remains stationary while said object moves, wherein

~~said magnetic circuit comprising a U-shaped first magnetic body, a U-shaped second magnetic body, and two magnets,~~

said two magnets are disposed between said U-shaped first and second magnetic bodies arranged vertically,

said magnetic sensor element is disposed to a generally center portion between said U-shaped first and second magnetic bodies, and

an object to be detected, said object positioned in said magnetic circuit in a space between said U-shaped first and second magnetic bodies, said magnetic sensor element remains stationary while said object moves, wherein

said object to be detected is disposed in a linearly movable manner between both ends of said U-shaped first magnetic body and both ends of said U-shaped second magnetic body.

23. (Withdrawn) The non-contact position sensor according to claim 22, wherein

one side arm of said U-shaped first magnetic body has a width generally equal to a width of one side arm of said U-shaped second magnetic body,

another side arm of said U-shaped first magnetic body has a width generally equal to a width of another side arm of said U-shaped second magnetic body, and

Application No.: 09/913,362
Amendment Dated: August 12, 2005
Reply to Office Action of: April 27, 2005

MAT-8172US

a detectable distance of said object to be detected equals to a distance derived by subtracting a length of a detective section of said object from the sum of the width of said one side arm, the width of said another side arm, and a space between said one side arm and said another side arm.

24. (Withdrawn) The non-contact position sensor according to claim 23, wherein the length of said detective section is longer than any of the width of said one side arm and the width of said another side arm.

25. (Withdrawn) The non-contact position sensor according to claim 22, wherein a portion of any of said U-shaped first and second magnetic bodies where said magnetic sensor element is disposed has a stepped level of different plane from the other portion of said U-shaped first and second magnetic bodies.

26. (Withdrawn) The non-contact position sensor according to claim 25, wherein the portions of said U-shaped first and second magnetic bodies where said magnetic sensor element is disposed are in contact to each other via said magnetic sensor element.

27. (Previously Presented) The non-contact position sensor according to claim 1, wherein said magnetic flux passes through the object from one magnet to another.

28. (Previously Presented) The non-contact position sensor according to claim 1, wherein said magnetic flux passes through the object from one magnet to another.

29. (Previously Presented) A non-contact position sensor according to claim 1, wherein said one magnet oriented with reserve polarity relative to said another of said magnets.